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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte SHIGEKAZU YASUOKA, JUN ISHIDA,
TETSUYUKI MURATA, and HIROSHI NAKAMURA

Appeal 2010-004873
Application 10/743,745
Technology Center 1700

Before CHARLES F. WARREN, TERRY J. OWENS, and
CATHERINE Q. TIMM, *Administrative Patent Judges*.

WARREN, *Administrative Patent Judge*.

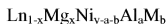
DECISION ON APPEAL

Applicants appeal to the Board from the decision of the Primary Examiner finally rejecting claims 1-4, 9-16, and 21-25 in the Office Action mailed August 20, 2008. 35 U.S.C. §§ 6 and 134(a) (2002); 37 C.F.R. § 41.31(a) (2008).

We reverse the decision of the Primary Examiner.

Claim 1 illustrates Appellants' invention of a hydrogen absorbing alloy, and is representative of the claims on appeal:

1. A hydrogen absorbing alloy represented by the formula



(where Ln is at least one element selected from rare earth elements, M is at least one element selected from V, Nb, Ta, Cr, Mo, Mn, Fe, Co, Ga, Zn, Sn, In, Cu, Si, P and B, $0.05 \leq x < 0.20$, $2.8 \leq y \leq 3.9$, $0.10 \leq a \leq 0.25$ and $0 \leq b$), wherein, when said at least one element selected from rare earth elements includes La, a mole ratio of La in said at least one element selected from rare earth elements is not greater than 0.5.

Appellants request review of the grounds of rejection under 35 U.S.C. § 103(a) advanced on appeal by the Examiner: claims 1-4, 9-16, and 21-24 over Kaneko (US 5,964,968); and claim 25 over Kaneko in view of Newman (US 5,283,139). Br. 4;¹ Ans. 3 and 4.

Opinion

We agree with Appellants' contention that the Examiner erred in not adequately explaining how the claimed hydrogen absorbing alloy encompassed by representative claim 1 falls within the hydrogen absorbing alloys described by Kaneko to one of ordinary skill in the art.

We find that Kaneko would have disclosed to one of ordinary skill in the art a rare-earth metal-nickel hydrogen storage alloy represented by the formula $(\text{R}_{1-x}\text{L}_x)(\text{Ni}_{1-y}\text{M}_y)_z$ wherein R is a rare earth element, L can be Mg, and M can be Al, and with respect to the $(\text{Ni}_{1-y}\text{M}_y)_z$ component, wherein $0 \leq y \leq 0.5$, and $4.5 \leq z \leq 5.0$. Kaneko abstract and col. 3, ll. 28-48. Br. 6-7.

We find that in the statement of the ground of rejection over Kaneko

¹ We considered the Appeal Brief filed April 20, 2009, with the exception of the arguments that rely in whole or in part on the document "Fig. 6.2.6, which illustrates the different crystalline structures of AB_x ," which was not considered by the Examiner as set forth in the Office Communication mailed November 20, 2009. See Br. 5. See 37 C.F.R. §§ 41.37(c)(1)(ix) ("Reference to unentered evidence is not permitted in the brief."), and 41.37(c)(2) ("A brief shall not include any . . . non-admitted . . . evidence.").

alone, the Examiner merely recites the teachings of Kaneko, and on this basis determines that the “selection of the portions of elements would appear to require no more than routine investigation by those of ordinary skill in the art.” Ans. 3-4. In response to Appellants’ arguments, the Examiner again recites the teachings of Kaneko, and then states that “the Examiner notes that the range of the subscript of Ni [sic] would be from 2.5 to 5 and would therefore encompass the range of 2.8 to 3.8 for Ni as argued by the Appellant.” Ans. 6. Appellants point out that “in the Advisory Action dated January 29, 2009, [the Examiner] notes that in the alloy of Kaneko, ‘z’ modifies both ‘1-y’ and ‘y’ such that ‘the range for the Ni subscript, $(1-y)_x$, is 2.5 to 5 and the range for the M subscript, yxz , is 0 to 2.5.’” Br. 6-7.

Thus, from the Advisory Action, we determine that the Examiner apparently focused on the relationship “ $Ni_{1-y-a-b}Al_aM_b$ ” in the claimed alloys encompassed by claim 1 and on the same relationship “ $(Ni_{1-y}M_y)_z$ ” in Kaneko’s alloys in arriving at the grounds of rejection. Indeed, from a cursory review of these respective formulae, it is apparent that the “subscript of Ni” referred to by the Examiner in response to Appellants’ arguments in the Answer is only that appearing in claim 1 because there is no explanation in the statement of either ground of rejection in the Answer with respect to subscripts in Kaneko’s formula as there was in the Advisory Action, as Appellants point out in the Brief. Br. 7.

Accordingly, the Examiner’s basis for the grounds of rejection advanced on appeal is not specified in the statement of either ground of rejection or in argument in the Answer, and therefore, in the absence of an adequate explanation of the grounds of rejection, the Examiner failed to carry the burden of presenting a prima facie case of obviousness in either

ground, which alone is reversible error. *See, e.g., In re Jung*, 637 F.3d 1356, 1362 (Fed. Cir. 2011), and cases cited therein.

Furthermore, on this record, we determine that it is not apparent that the claimed alloys encompassed by claim 1 fall within and thus would have been *prima facie* obvious over Kaneko's alloys. We find from both claim 1 and Kaneko that the subscripts for Ni and Al must be considered together in determining the scope of the alloys encompassed by claim 1 and by Kaneko. And, in Kaneko, the subscript "z" must be considered with respect to both of the Ni subscript "1-y" and the Al subscript "y." We determine that when the respective formulas are considered in this manner, there is no overlap in the ranges of the amounts of each of Ni and Al considered together in the respective claimed and Kaneko alloys, and thus, the claimed alloys do not fall within Kaneko's alloys. In this respect, the Examiner has not explained why one of ordinary skill in the art would have adjusted the amounts of Ni and Al in Kaneko's alloys in order to arrive at the claimed alloys encompassed by claim 1. *See generally* Ans. *See, e.g., In re Sebek*, 465 F.2d 904, 907, (CCPA 1972) ("Where, as here, the prior art disclosure suggests the outer limits of the range of suitable values, and that the optimum resides within that range, and where there are indications elsewhere that in fact the optimum should be sought within that range, the determination of optimum values outside that range may not be obvious.").

Accordingly, in the absence of a *prima facie* case of obviousness, we reverse the grounds of rejection advanced on appeal.

The Primary Examiner's decision is reversed.

REVERSED

tc/sld